

Q'STRAIT®

User Instructions

QER-4000®

Electrical Retractor



M MODEL1
www.Model1.com | (888) 633-8380

Covers all Electrical Retractors for front wheelchair tie-downs

PLEASE LEAVE THESE INSTRUCTIONS IN THE VEHICLE OR SEND THEM ON WITH THE OWNER OPERATOR.

QER-4000®

ELECTRICAL RETRACTOR USER INSTRUCTIONS



This document is a comprehensive product user instruction; care must be taken to always be aware of your surroundings when installing this product. The Electrical Retractors are designed and tested to be used in the front positions **ONLY** within the Q'Strait four point securment systems.

Please read, follow, and understand these instructions completely and report any deviations to your supervisor or your nearest Q'Strait office. Contact information is posted on back page of this document.



**READ ALL INSTRUCTIONS THOROUGHLY
PRIOR TO INSTALLATION**

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GENERAL INFORMATION

Q'Straint introduces QER-4000, the world's first 4m front electrical locking retractor for the easy securement of wheelchairs in vehicles.

Q'Straint's QER-4000 4-Point wheelchair & occupant securement systems, when used as recommended, provide the safest means of transportation for wheelchair passengers unable to transfer from their wheelchairs when traveling in motor vehicles. Each component has been designed, engineered and tested to work as one comprehensive system.

- **4m Webbing** - Allows the safe and easy securement to the wheelchair, to take place on flat ground as opposed to on a ramp.
- **Zinc Casing** - Durable casing to protect webbing and ensure product longevity.
- **Extra Lateral Strength Bar** - Provides superior resilience and strength.
- **Compatible With All 12 Volt Vehicles** - The Electric Retractor is easily integrated into the vehicle's electrical system. *Please carefully read, follow, and understand the electrical requirements, recommendations, warnings, and fail-safe system requirements.*
- **Minimum Tensile Strength of 3,300 lbs** - Exceeds industry standards by up to 20%.
- **One Bolt Installation** - Ensures a quick and straightforward installation as only one bolt is required to safely secure the unit to the vehicle floor. (Any other applications different from the above should be reviewed with Q'Straint applications engineering). Contact information is posted on back page of this document.
- **Successfully Undergoes 50,000 Cycle Testing Operations** - Surpasses automotive seatbelt standards.

PRODUCT DESCRIPTION

This product is designed for use as a front tie-down **ONLY** and is operated using a switched and fused 12v dc power supply. All systems require application of 12 VDC to the Electric Retractors through a relay that is energized by a momentary electrical switch. Voltage to the Electric Retractors can only be initiated through activation of this one switch. All systems require a second switch that de-energizes the relay, removing voltage to the Electric Retractors. When correctly fitted and wired this product will restrain a maximum of 15kN (3,300lbs) frontal rebound force and can be locked and unlocked as follows:

- o Power on = retractor free, freewheeling webbing in and out.
- o Power off = retractor locked webbing will not come out, but it will self retract.

WARNINGS, NOTES AND IMPORTANT INFORMATION

This guide is provided to assist with the installation of securement system components into vehicles' floors and walls. If you have any questions or problems relating to your installation, please contact your nearest Q'Straint office.

- An experienced technician should always perform the installation, inspection, and maintenance.
- Installers and users should not attempt to repair, adjust, make any alterations, or modify this system in any way without prior written approval from Q'Straint.
- Protect the webbing around sharp corners and edges as applicable.
- Prevent contamination of belt webbing from oil, gases, polishes and chemicals, in particular battery acid.
- When fitted into the vehicles electrical system, this product must be suitably fused, switched & grounded. As well as the proper protection of the wires from dirt moisture, and vandalism.
- Operation instructions for this product must be incorporated into the vehicles own user instructions.

WARRANTY OF CONFORMANCE

This product complies with the regulatory requirements within: Americans with Disabilities Act (ADA) - 49 Code of Federal Regulations (CFR) Part 38; "Accessibility Specifications for Transportation Vehicles" – Subpart B - Buses, Vans and Systems.
Also covered by CSA Z605 – D409

ELECTRICAL REQUIREMENTS

- 12VDC 1.5 amps.
- The 12VDC **MUST** to be tied into the vehicles electrical systems, (see Electrical Fail-Safe Systems Requirements).
- When the vehicle is stopped and the parking brake is applied, then 12VDC is applied to the Electric Retractors (see Electrical Fail-Safe Systems Requirements).
- The two wire connectors need to be placed near the Electric Retractors and properly secured, covered, and protected from the elements and vandalism.



***The Electrical Retractors MUST be tied into the vehicle electrical systems,
(see Electrical Fail-Safe Systems Requirements below).***

ELECTRICAL RETRACTOR FAIL-SAFE SYSTEM REQUIREMENTS

All systems require application of 12 VDC to the Electric Retractors through a relay that is energized by a momentary electrical switch. Voltage to the Electric Retractors can only be initiated through activation of this one switch. All systems require a second switch that de-energizes the relay, removing voltage to the Electric Retractors.

In addition to these manual controls, the Electric Retractor installation shall be equipped with fail-safes that help to prevent them from being released while the vehicle is moving. One or more of the following examples are required, and must be used:

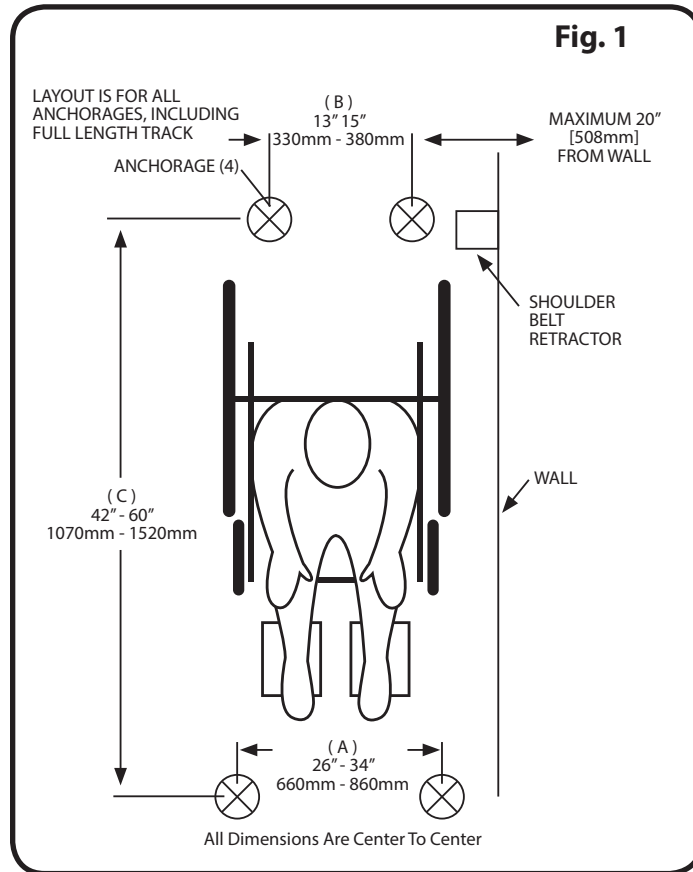
1. An electric timer that cuts the voltage to the Electric Retractors may be used within a two (2) minute window of their activation.
2. A tailgate, door, or ramp switch that removes voltage to the retractors when the tailgate or ramp door is closed and the ramp is stowed.
3. A parking brake switch that removes the voltage to the retractors when the parking brake is released.
4. A transmission switch that removes the voltage to the retractors when the transmission is out of park.
5. **Note:** A warning light that illuminates when the 12 volts is applied to the Electric Retractors. (This is not a failsafe, only a visual warning).

FLOOR ANCHORAGE LAYOUT RECOMMENDATIONS

The following are the recommended best installation practices and distances (center-to-center) between floor anchorages (Figure 1).



Recommended distances are based on common wheelchair sizes.
Exceptionally large or small wheelchairs may require anchorage spacing that differs from our recommendations.
Consider optimal tie-down angles to determine exact placement of floor anchorages (Figure 2).



USER INSTRUCTIONS

1. Ensure the vehicle is parked on a suitable firm and level surface, taking care to not have too great of an incline and with the parking brake applied.
2. Open the access door and position ramp.
3. Position the wheelchair or mobility aid at the bottom of the ramp straight on and apply the wheelchair brake so that it is secure whilst attaching the Electrical Retractor hooks.
4. Turn on the power to Electrical Retractors. This will unlock them and allow the webbing to be pulled out.
5. Take hold of the attachment device (hook) and pull it out of the vehicle to the wheelchair or mobility aid.

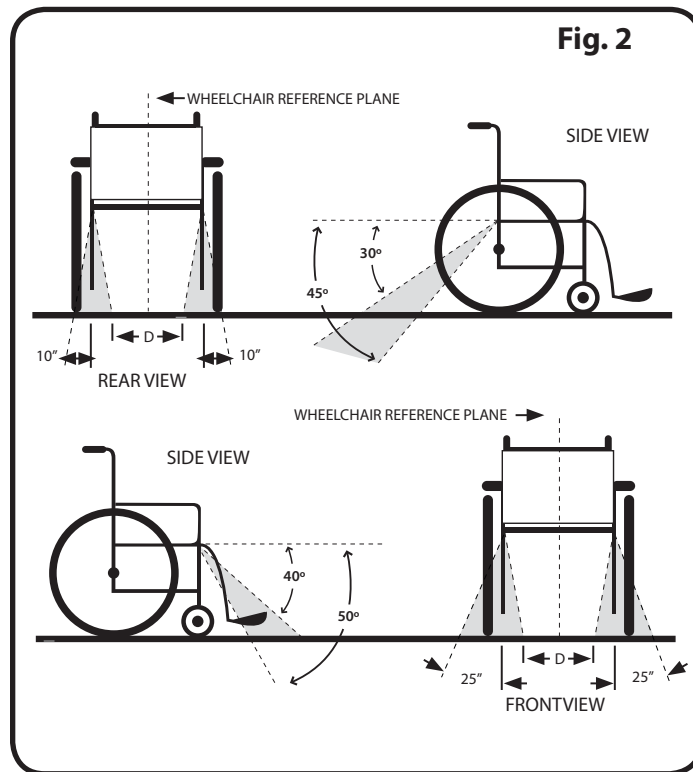
USER INSTRUCTIONS CONT...

6. Place the J-hook onto a solid frame member at the front of wheelchair or mobility aid, taking into account the proper angles needed (Figure 2).
7. Turn off the power to the Electrical Retractors. Doing this will allow the webbing to self tension back into the retractors as the wheelchair is moved into the vehicle and will allow them to lock so that the wheelchair or mobility device will not move (roll) back down the ramp.
8. Disengage the brake on the wheelchair or mobility aid.
9. Standing behind the wheelchair or mobility aid, push (or under power) it up into position in the vehicle.
10. Once in position, pull the wheelchair backwards to tension the webbing and return it to its original position. Repeat this operation a couple of times.



Note: *When positioning the wheelchair or mobility aid, please ensure that the wheelchair or mobility aid is centered between the front and rear restraints.*

Important: *You will need to make sure you have at least 8" inches (203mm) between the front of the wheelchair and the Electrical Retractors. This space is required to facilitate the release of the electrical retractors from the wheelchair. See figure below for proper belt angles to the wheelchair.*



Preferred locations and angles of tie-downs from wheelchair securement points to vehicle anchor points. Front tie-downs should be angled out for lateral stability when possible. $D=12"$ (305mm).



The webbing must always be tensioned once the wheelchair or mobility aid is positioned and the Electric Retractors are powered off, check by pulling the wheelchair towards the back of vehicle. Taking special care to position yourself between the ramp and the wheelchair.

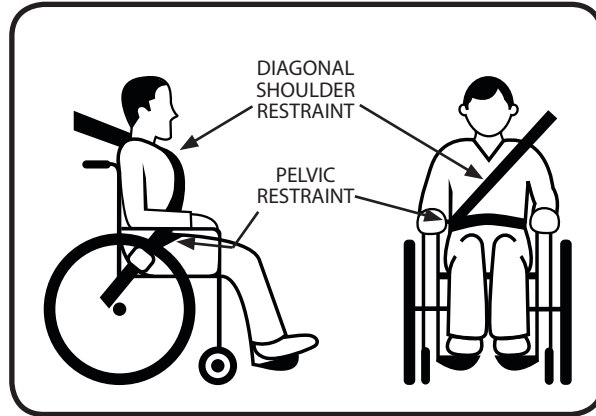
11. Re-apply the wheelchair brake.
12. Connect and tension the rear tie-downs to secure the wheelchair.
13. Secure the occupant. Refer to the specific instructions for the product used.



Lap belt should bear upon the bony structure of the wheelchair occupant's body and must never infringe on any component of the wheelchair such as armrests, panels, wheels, frames, etc.



Belt restraints must not be held away from the body by wheelchair components such as armrests or wheels



REMOVING THE WHEELCHAIR OR MOBILITY AID FROM THE VEHICLE

1. Ensure the vehicle is parked on a suitable firm and level surface, taking care to not have too great of an incline and with the parking brake applied.
2. Open the access door and position ramp.
3. Release and remove the occupant restraints and place them out of the way so that they do not create a tripping hazard or get damaged.
4. Release and remove the rear tie-downs and place them out of the way so that they do not create a tripping hazard or get damaged.
5. Turn on the power to Electrical Retractors. This will unlock them and allow the webbing to be pulled out.
6. Disengage the wheelchair or mobility aid brake, taking care to position yourself between the wheelchair and the ramp.



You may need to roll the wheelchair forward slightly 1-2 inches first to help disengage the Electrical Retractors.

7. Carefully wheel the wheelchair or mobility aid out of the vehicle until it is fully off the ramp and onto suitable, firm, and level ground.
8. Re-apply the wheelchair brake.
9. Remove the Electrical Retractor hooks from the front of the wheelchair or mobility aid and walk them back into position in the vehicle.
10. Turn off the power to the Electrical Retractors.



Do not release or let go of the hooks and allow them to retract by themselves towards the vehicle as this could cause damage to the vehicle, persons, and or the Electrical Retractors.

POWER FAILURE PROCEDURE

Removing the wheelchair or mobility aid; in the unlikely event of power failure.
Should there be a power failure, it will not be possible to unlock the Electric Retractors.
In the unlikely event that this happens the following instructions should be followed.

1. Follow the above instructions in the section called Removing the Wheelchair or Mobility Aid from the Vehicle, up to number 5.
2. Ensure that the wheelchair will not roll forward; it is highly recommended that a second person is present to assist during this process.
3. Disengage the wheelchair or mobility aid brake, but do not allow the wheelchair or mobility aid to roll forward at all.
4. Take hold of the Electric Retractor hook and webbing to ensure that the webbing is not retracted back into the housing.
5. Move the wheelchair forward to release the tension on the webbing and remove the hooks from the wheelchair.
6. Carefully continue to remove the wheelchair or mobility aid from the vehicle.



The operator should never attempt to use the system if they do not fully comprehend how the system works or if the system is malfunctioning in any way. If in doubt, notify your supervisor, or your nearest Q'Straint office.

BASIC TROUBLE SHOOTING

Webbing remains locked when power is applied to the Electrical Retractors.

If the instructions in section “**Removing the wheelchair or mobility device from the vehicle**” have been followed and do not work then it is likely that the wheelchair has been positioned too close to the front retractors and there is insufficient room to move the wheelchair forward to release the tension in the webbing. If this should occur then:

1. With the power on, pull on the webbing to compress the webbing around the retractor spindle. This should allow the webbing to be released.
2. If step number 1 does not work – then the retractor can be removed from the track or its anchorage.

You need to take care to not allow the wheelchair or mobility aid to move forward. If the retractor is hard mounted and in the event of an emergency the webbing may need to be cut to release the wheelchair tie-downs and the Electric Retractor replaced. Our belt cutter part number is Q5-7590.



To prevent this issue from re-occurring, it is important to position the wheelchair or mobility AID correctly into the restraint area, see the warning under the “Loading the wheelchair or mobility aid into the vehicle”.

Ensure that there is always 8” (102mm) or more between the front of the wheelchair or mobility AID and the Electrical Retractors.

This will enable the wheelchair to be moved forward to release the tension on the Electric Retractors.

Excess webbing remains outside of the Electric Retractor when power is off.

1. Occasionally the webbing may not fully retract. If this happens then the webbing should be fully unwound or pulled out and allowed to fully retract immediately, ensure the retractor is locked (no power) and pull the end of the webbing to compress onto the reel. Allow the remaining webbing to retract.
2. The webbing should now release from the retractors when the power is switched on.

WARNINGS

- Do not alter or modify the system or components in any way without first consulting Q'Straint.
- The system is a complete, integrated system. Do not interchange or substitute any components.
- Q'Straint systems and components have been tested in a configuration similar to that recommended in these instructions. Any deviation from these recommendations is the responsibility of the installer.
- Systems and components should only be installed by an experienced technician.
- Installer is responsible for ensuring that installation meets all applicable regulations and standards.
- Do not install anchorages or any system component into unsound materials such as corroded metal, wood, plastic or fiberglass panels without suitable reinforcement.
- Regulations and standards in some countries require installation of a shoulder belt to be considered a complete system.
- Verify with your local authorities for any specific local regulations, standards or requirements.
- All interior vehicle padding should comply with the requirements of FMVSS 201/302 and ISO 3795.
- Protect all webbing from contacting sharp corners and edges.
- If a head restraint is anchored to the vehicle, a vehicle anchored back restraint must be provided to minimize rearward deflection of the wheelchair seatback and thereby prevent injury.
- Airbags should be used only as a supplementary occupant restraint in combination with a wheelchair tie-down and belt type occupant restraint system compliant with requirements of SAE J2249 / ISO10542.
- Airbags should be disconnected if the wheelchair passenger is positioned less than 7" (175mm) from the airbag module, or if any after-market device is installed so as to block or compromise deployment of the airbag.
- Report all potential damage and defects to your supervisor or the nearest Q'Straint office.
- Replace any systems or components (including floor and wall anchorages) that were used during a vehicle collision.
- In the event of any questions relating to the method of installation and/or use of wheelchair & occupant securement systems (or components), please consult your nearest Q'Straint office.

MAINTENANCE AND CARE

- **Always keep tie-downs and belts clean and off the floor by using a storage device such as Q'Straint's wall pouch.** One (1) storage device per wheelchair location is recommended.
- **All systems and components should be regularly inspected, cleaned, and maintained.**
 - Clean webbing periodically with mild soap and water. After cleaning, fully extend the webbing (and position them to prevent water from entering retractors) until completely dry.
 - Occasionally lubricate occupant buckles at the hinges being careful not to contaminate the webbing.
 - Clean bolt threads and re-apply permanent thread locker if bolts are adjusted.
- **Prevent contamination of webbing from contact with oil, gases, polishes and chemicals, in particular, battery acid.**
- **Frayed, contaminated or damaged webbing should be replaced.**
- **Broken and worn components should be replaced.**
- **Replace any systems or components (including floor and wall anchorages) that were used during a vehicle collision.**

**IF YOU HAVE ANY QUESTIONS OR NEED ADDITIONAL INFORMATION
PLEASE CONTACT YOUR NEAREST Q'STRAIN OFFICE**



qstraint.com

This guide contains current information at time of printing.
Q'Straint reserves the right to modify systems, components or content without notice.



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